

Venous Thromboembolism in the Neurotology Patient

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Background and Introduction

- Venous thromboembolism (VTE) is a leading cause of preventable hospital death in the United States.
- Sudden death is the first symptoms in approximately one-quarter of patients with VTE¹.
- Many factors including recent surgical intervention increase the risk of VTE.
- Procedures in neurotology are known to be inherently complex, and associated with both local and systemic complications^{1,2}.
- Low rates of VTE have been reported in perioperative patients undergoing skull base surgery, thus raising question regarding the value of establishing routine VTE prophylaxis².
- To date, there is no universal guideline for VTE prophylaxis in the field of neurotology.

Aim

To evaluate current rates of VTE amongst the neurotologic patient population, and also present a proposed VTE prophylaxis protocol and call to arms for the development of a uniformed guideline.

Results

- An institutional VTE rate of 0.2 % VTE event over the 6.5 years study period was observed.
- This was approximately one-tenth of the rate observed from review of the literature and meta-analysis.
- There was no observed increased rate of post-operative hemorrhage institutionally with a 6.5 year rate of 0.2%.

Discussion

- Current guidelines for chemoprophylaxis in other surgical subspecialties may be less applicable to patients undergoing neurotologic surgery, given the low rates of VTE³.
- The decision to use preoperative chemoprophylaxis should be weighted against the potential risk for intraoperative bleeding as well as postoperative intracranial hemorrhage^{1,3}.

Conclusions

- A comprehensive institutional protocol for VTE prophylaxis in the neurotology patients was found to be associated with a lower rate of VTE than previously reported in the literature without increase in observed post-operative hemorrhages.
- This highlights the importance of and need for development of a standardized, universal comprehensive protocol for VTE prophylaxis in the neurotology patient population.

Methods and Materials

- A retrospective review of operative neurotologic patients from July 1, 2016 to December 31, 2022 was performed at an urban tertiary referral center.
- A review of the literature and meta-analysis of VTE in the neurotologic patient population additional was performed.

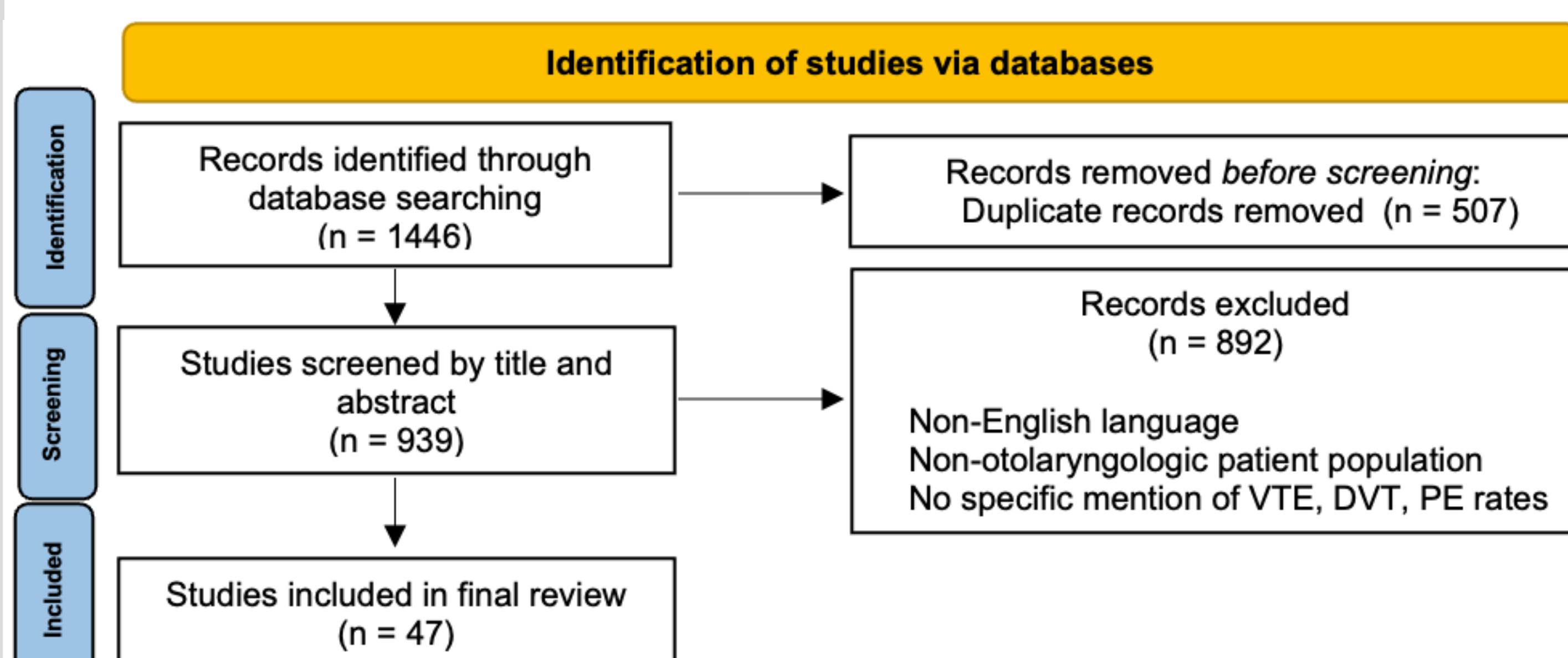


Figure 1.

Study	Study Design	Level of Evidence	Dates of Study	Patient Total	Hospital Status	Observation Time	Operation Type	VTE Rate
Graham et al. (1976)	Prospective (Observational)	1b	(Unspecified)	35	Inpatient	Discharge	(Unspecified)	0.00%
Morreano et al. (1998)	Retrospective (Single Institution)	2b	1987-1994	2526	Inpatient	Discharge	(Unspecified)	
Slattery et al. (2001)	Retrospective (Single Institution)	2b	1987-1997	1687	Inpatient	Discharge	Vestibular Schwannoma	0.36%
Mahboubi et al. (2016)	Retrospective (Nationwide)	2c	2009-2013	404	Inpatient	30 days	Vestibular Schwannoma	
Casazza et al. (2018)	Retrospective (Single Institution)	2b	2011-2016	126	Inpatient	Discharge	Vestibular Schwannoma	3.20%
Lipschitz et al. (2019)	Retrospective (Single Institution)	2b	2010-2017	205	Inpatient	30 days	Vestibular Schwannoma	2.44%
Song et al. (2019)	Retrospective (Single Institution)	2b	2008-2016	1185	Inpatient/Outpatient	30 days	Otology (Non-Oncologic)	0.00%
Fakurnejad et al. (2020)	Retrospective (Nationwide)	2c	2003-2016	3420	Outpatient	30 days	Cochlear Implantation	0.06%
Goshtasbi et al. (2020)	Retrospective (Nationwide)	2c	2005-2017	1405	Inpatient	30 days	Vestibular Schwannoma	
Ragavan et al. (2020)	Retrospective (Single Institution)	2b	2006-2017	216	Inpatient	30 days	Vestibular Schwannoma	
Anderson et al. (2021)	Retrospective (Single Institution)	2b	2013-2018	197	Inpatient	6 months	Vestibular Schwannoma	3.05%
Ali et al. (2021)	Retrospective (Single Institution)	2b	2009-2016	375	Inpatient	30 days	Neurotology (General)	1.29%
Current Study (2023)	Retrospective (Single Institution)	2b	2016-2022	2065	Inpatient/Outpatient	30 days	Neurotology (General)	0.19%
Total				13846				1.18%

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- 3 Geerts WH, Bergqvist D, Pineo G F. Prevention of venous thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition) Chest 2008;133(6, Suppl):381S-453S.